

CLAIMS

1. A manufacturing method for a gas discharge panel that has a first substrate on which a protective layer is formed and a second substrate on which phosphor layers are formed, the manufacturing method comprising an alignment step for arranging the first substrate and the second substrate at predetermined locations, while opposing the first substrate and the second substrate,

wherein the alignment step is conducted under a reduced pressure.

2. The manufacturing method for the gas discharge panel of Claim 1,

wherein the first substrate is placed under a reduced pressure and heated in a first reduced pressure chamber and/or the second substrate is placed under a reduced pressure and heated in a second reduced pressure chamber, prior to the alignment step in which the first and the second substrates are aligned under a reduced pressure in a third reduced pressure chamber.

3. The manufacturing method for the gas discharge panel of Claim 2,

wherein, after the protective layer is formed on the first substrate, the first substrate is subjected to a first substrate baking step in which the first substrate is placed

under the reduced pressure and heated in the first reduced pressure chamber.

4. The manufacturing method for the gas discharge panel of
5 Claims 2 and 3,

wherein the second substrate is formed by a phosphor layers forming step, a phosphor layers baking step, a seal member applying step, and a seal member pre-baking step, and
10 the second substrate is placed under the reduced pressure and heated in the second reduced pressure chamber part way through the seal member pre-baking step.

5. The manufacturing method for the gas discharge panel of
Claim 4,

15 wherein the first and the second reduced pressure chambers are each reduced to a pressure of 1,333Pa or less.

6. A manufacturing method for a gas discharge panel that has a first substrate on which a protective layer is formed
20 and a second substrate on which phosphor layers are formed, the manufacturing method comprising an alignment step for arranging the first substrate and the second substrate at predetermined locations, while opposing the first substrate and the second substrate,

25 wherein the alignment step is conducted in dry gas.

7. The manufacturing method for the gas discharge panel of

Claim 6,

wherein the first substrate is placed in dry gas and heated in a first dry gas chamber and/or the second substrate is placed in dry gas and heated in a second dry gas chamber,
5 prior to the alignment step in which the first and the second substrates are aligned in dry gas in a third dry gas chamber.

8. The manufacturing method for the gas discharge panel of Claim 7,

10 wherein, after the protective layer is formed on the first substrate, the first substrate is subjected to a first substrate baking step in which the first substrate is placed in dry gas and heated in the first dry gas chamber.

15 9. The manufacturing method for the gas discharge panel of Claims 7 and 8,

wherein the second substrate is formed by a phosphor layers forming step, a phosphor layers baking step, a seal member applying step, and a seal member pre-baking step, and

20 the second substrate is placed in dry gas and heated in the second dry gas chamber in the beginning of the seal member pre-baking step.

10. The manufacturing method for the gas discharge panel of
25 Claim 9,

wherein the first dry gas chamber and the second dry gas chamber are each filled with dry gas whose dew-point is

specified to -30°C or less.

11. The manufacturing method for the gas discharge panel of Claims 1 and 6,

5 wherein the first substrate is placed under the reduced pressure and heated, and the second substrate is placed in dry gas, before the alignment step is conducted.

12. The gas discharge panel manufactured by the
10 manufacturing method of Claim 2 or 7,

 wherein a water vapor partial pressure in the internal space of the panel is 100Pa or less.

13. A manufacturing apparatus for a gas discharge panel
15 having a first substrate carrying mechanism, a second substrate carrying mechanism, and an alignment mechanism,

 wherein each mechanism is provided in different hermetically sealed chambers, which each include at least one of a gas supplying mechanism and a gas exhausting mechanism.
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14. The manufacturing apparatus for the gas discharge panel of Claim 13,

 wherein connecting units are provided between the chamber including the first substrate carrying mechanism and
25 the chamber including the alignment mechanism and between the chamber including the second substrate carrying mechanism and the chamber including the alignment mechanism, and

each connecting unit has at least one of a gas supplying mechanism and a gas exhausting mechanism in it.